

Original document

FIELD-EFFECT TRANSISTOR

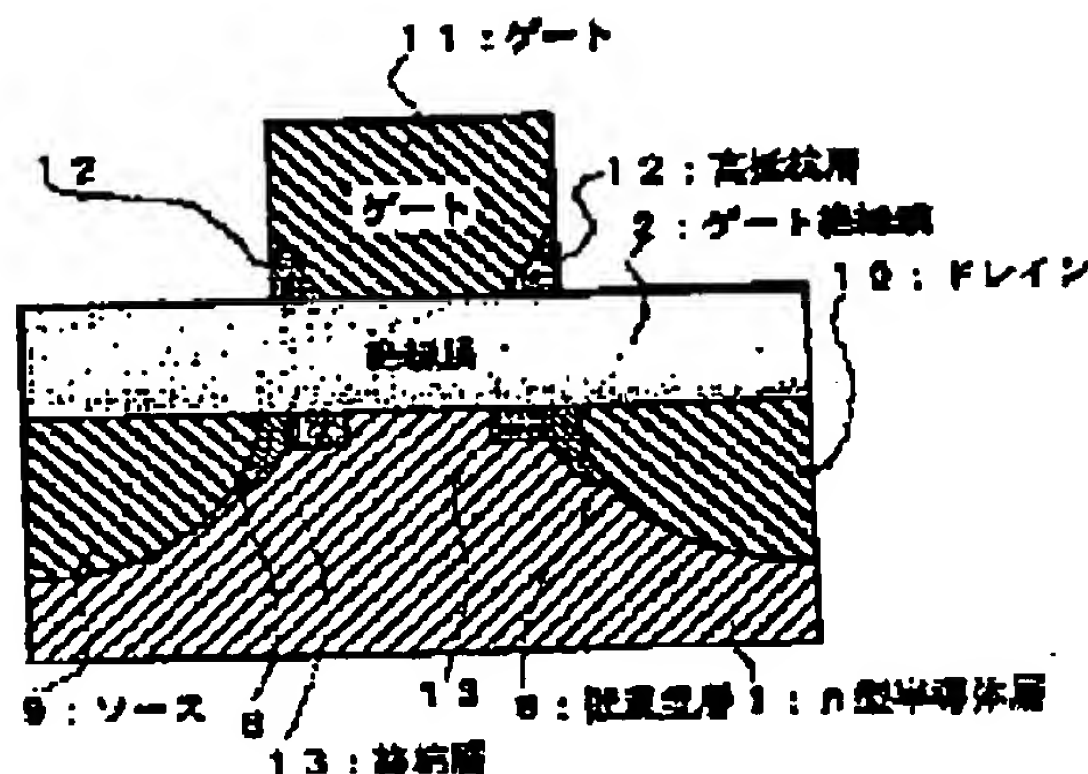
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Abstract of JP9252117

PROBLEM TO BE SOLVED: To suppress the change of the threshold voltage owing to the perpetration phenomenon to a p-channel by means of BF₂, and leak current owing to a boundary potential in a gate and a gate insulating film by means of B when ions are implanted to a p-channel field effect transistor.

SOLUTION: F is ion-implanted from an oblique direction with acceleration voltage 10-100keV and implanting quantity $1 \times 10^{11} - 1 \times 10^{16} \text{ cm}^{-2}$ in a gate 11. A low intensity layer 8 containing B of $2 \times 10^{12} - 2 \times 10^{16} \text{ cm}^{-3}$ and a terminal layer 13 containing F of $2 \times 10^{12} - 2 \times 10^{16} \text{ cm}^{-3}$ are formed under the gate insulating film 2. High resistance layers 12 are formed at the lower end parts of the gate 11. Then, the reduction of the valid voltage and insulation destruction at the gate end part owing to the enlargement of a distance are prevented and the boundary potential causing leak current is regulated by means of intense connection energy of F.



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